Instant Messaging, a Synchronous Virtual Reference Tool The Mirrors Higher Education's Mission and Students' Needs: How Grounded Theory Placed the Library in the Middle of the Mix

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Abstract
Most academic libraries provide instant messaging services to their users. For this research project, the authors wanted to discover what occurs during synchronous virtual reference interviews at Iowa State University library. In order to assess the totality of synchronous virtual reference service, the researchers implemented a qualitative, holistic approach that generates a theory about what happens during these interviews. Grounded theory formed the philosophical framework for this qualitative assessment. Classical grounded theory minimizes preconceptions, does not start with a research problem, and does not recommend a literature review before starting a project. Additionally, synchronous learning is a topic of interest in educational research. Analyzing the primary documents, in this case the IM transcripts, involved coding the text. The patterns that developed from these codes became axial or code families. From the code families emerged networks. Three networks emerged: titled teaching and learning; community awareness; and service quality.

This assessment illustrated that reference services provided essential community mapping and teaching and learning opportunities for users. This research defined community mapping as the service librarians provide during the synchronous virtual reference transaction that point users to a place, a service point, or virtual marker either within or without the library. This service builds users awareness of their surrounding community. Synchronous virtual reference increases users' ability to access and assess research materials, and builds users knowledge of their campus community. Synchronous virtual reference illustrates the library central role in supporting the teaching and learning experiences of users and in complementing the mission of research institutions.

Disciplines
Library and Information Science

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Instant Messaging, a Synchronous Virtual Reference Tool That Mirrors Higher Education’s Mission and Students’ Needs: How Grounded Theory Placed the Library in the Middle of the Mix

Sarah Passonneau
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Abstract
Most academic libraries provide instant messaging services, which are a form of synchronous virtual reference (SVR), to their users. The authors wanted to discover what occurs during SVR interviews at Iowa State University library. Grounded Theory formed the theoretical framework for this qualitative research. Analyzing the SVR interviews, in this case instant messaging (IM) transcripts, involves coding the text. The patterns that developed from these codes developed into groups that became axial codes and selective codes. After developing several code groups called axial codes, networks emerged. Three networks grew out of this research; the networks were community awareness, teaching and learning, and service quality. This research illustrates that reference services provided essential community awareness regarding community services and provided teaching and learning opportunities for users. SVR increases users’ abilities to access and assess research materials and builds users’ knowledge of their campus community. SVR illustrates the library’s central role in supporting the teaching and learning experiences of users and in complementing the mission of research institutions.

Introduction
What occurs during a synchronous virtual reference (SVR) interview? What place does this service have within the larger mission of the university? SVR is a reference service that provides real-time feedback. SVR can include instant messaging (IM), Skype, or videoconferencing. In contrast, email is an asynchronous messaging tool. The SVR research conducted at Iowa State University (ISU) library assessed the content of the instant messaging transcripts employing Grounded Theory (GT). GT is an inductive model. This research moved from the transcript data to create a generalized theory “about” synchronous virtual reference. The research uncovered three main activities related to reference questions. The two activities—community awareness and teaching and learning—provide important support to the larger goals and mission of the university. Additionally, the other activity—service quality—described the level of service users’ received during an SVR interview. The results of this research illustrated that SVR provided important community awareness services to users. This awareness provided users with a physical and virtual understanding of their community environment. Additionally, SVR afforded users, at times, essential teaching and learning opportunities especially when users asked questions related to accessing electronic scholarly resources. This assessment showed SVR services can supply libraries with important data. It is possible that this type of assessment can be used by library personnel and administrators to illustrate the library’s central role in supporting student learning and the mission of the university.

Background
Tic-mark tallying is a common method for gathering reference data. There is no standard method for assessing the content of SVR transactions. ISU library used the instant messaging (IM) application Meebo as its SVR tool. In the fall of 2008, the assessment librarian reviewed the IM transactions. The assessment librarian, in collaboration with a Meebo coordinator, formulated a qualitative analysis of the transcripts that would allow them to assess the content and effectiveness of the library’s SVR service.
Theoretical Framework

To fully assess SVR transcripts, the researcher used GT, a method that lets the material “speak for itself.” The sociologists Barney Glaser and Anselm Strauss developed GT in the 1960s. Glaser and Anselm acknowledged that the schema of data gathering, data coding, and data analysis is not a linear process. Inductive research starts with the specifics or particulars. A hypothesis grows from the particulars of the data. Most importantly, theory emerges from immersion in the data itself. Due to the fact that GT is an emergent theoretical model, the researcher does not conduct a preliminarily literature review before conducting research.

Four basic elements ensure the validity of library assessment employing GT.
1. The theory must fit the phenomenon and reflect the data.
2. The theory should provide understanding about the event, and it must be understandable.
3. The analysis from GT should provide generalities for a variety of contexts.
4. The theory should support actionable goals.

GT provided a rigorous, comprehensive framework to analyze, to illuminate, to generalize, and to provide actionable goals related to the service provided by ISU library.

In later years a philosophical schism occurred between Barney Glaser and Anselm Strauss. Strauss emphasized immersion in the data and discovery of meaning by reviewing the process. Glaser’s method underscored the need for a structure and a process in organizing the data. This research incorporated elements of each “tradition.” Emphasizing Strauss’s focus on the analytical and interpretative skills of the researcher, the initial research proceeded with a discovery-oriented approach. As the work progressed, the researcher used Glaser’s structure for organizing the data, the patterns, and the theory. To learn more about the differences in GT processes, the book Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis by Kathy Charmaz provides lucid introductory information on this topic. The combination of both theories increased the fit, validity, and generalizability of this research. Implementing Glaser’s formal structure eases the ability of future analysts to perform similar assessments of synchronous virtual reference.

Methodology

The initial analysis included the collection of 38 synchronous virtual references. The researcher then proceeded to code an additional 46 transcripts over a period of six months. The researchers coded the text, provided memos, and created conceptual frameworks. Codes represented comparable occurrences across multiple transcripts. The process of coding occurred in three major stages. This process included coding the first batch of transcripts, reviewing and revising the codes, and completing the coding for all transcripts. This research employed the ATLAS.ti software developed for qualitative analysis.

Software

ATLAS.ti is a software developed specifically for qualitative research. The software facilities researcher ability to code transcripts, create networks, examine frequencies, and review density from the data. Data analyzed in ATLAS.ti can be summarized in visually appealing tables, graphs, or figures. The initial 38 transcripts were coded in the software. The software does not allow additional transcripts to be added once the analysis is begun. Either a new set of transcripts becomes a separate hermeneutic group, or it must be tallied in a different application. To analyze the other 50 SVR transactions, the researcher used Microsoft Word and Excel.

Coding

The coding process facilitated the researcher’s immersion in the data. Immersion allows the researcher to understand the data. Concepts and a theoretical understanding of the content emerged from the transcripts. Coding proceeds sequentially: open coding, focused coding, and lastly, theoretical coding. In previous analysis of SVR transcripts, this researcher used ATLAS.ti terminology. For this paper, the terminology used is the standard vocabulary employed by GT and/or qualitative researchers. Table 1 provides definitions of the specialized terms used in GT.
A reiterative, recursive process occurred during this stage of analysis. The shifting and sorting of data occur until the focused codes create a pattern that explains the content of the SVR interview. The next stage involved creating networks. This involved the emergence of the theoretical schema that is graphically created in ATLAS.ti. The integration of data, categories, and meaning occurs at the theoretical coding stage. Figure one illustrates the relationship between the data and different codes and between memos that occurred within these transcripts.

### Table 1: Definitions of Grounded Theory Vocabulary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open coding</td>
<td>This stage focuses on the words of the participants. The unit to analyze varies from an individual word, line-by-line, several sentences, or paragraphs; the process includes highlighting words and creating reflective memos about potential interpretations of data.</td>
</tr>
<tr>
<td>Axial Coding</td>
<td>This is the second stage of coding. It identifies properties and dimensions of categories (key categories subsume sub categories &amp; specify interrelationships).</td>
</tr>
<tr>
<td>Selective Coding</td>
<td>This is the final stage of coding: the researchers create substantive theory from “core categories.” At this stage the researchers generate category that integrates all other categories (tells the whole story) into a network.</td>
</tr>
<tr>
<td>Invivo Coding</td>
<td>This type of code directly describes the data. For example, the code milkman represents the word milkman.</td>
</tr>
<tr>
<td>Sensitizing Coding</td>
<td>This is a conceptual code that describes the implicit or social meaning of a code. For example, the code learning can represent the word phrase- I understand.</td>
</tr>
</tbody>
</table>

#### Figure 1: Examples of coding and memoing processes

**Data**

- **isulibim:** Leave everything else blank and hit enter, and you'll get the entire list of online BW articles starting from the most recent
guest: I think I figured it out. Thank you very much!!

**Open Codes**

- **(Invivo) Electronic resources**

**Axial Coding**

- **New Knowledge**

**Open Codes**

- **(Sensitizing) Action**

**Selective/Synchronou s instruction**

**Memo**

**Initial Memo:** A response to the open codes and data

*Action: I think I figured it out/ Research process Library resource online articles*

**Additive Memo:** A response to focused, codes and theoretical codes

*This illustrates a part of the research process. There is a back and forth throughout interview. This is often true when a SVR interview deals with electronic materials one of several examples in which the librarian helps the user navigate the internal library space and the process for reporting problems or getting their needs meet.*

#### Memoing and Sorting

During the coding process, the researcher takes notes concerning the data, the development of codes, and the interrelationship of events. Memos provided a breadcrumb trail illustrating analytical processes and events. Sorting the data, the codes, and the memos assisted in the organization and finalization of a theoretical description of what actually happened during the SVR interviews.

#### Results

The organization of the codes fell into three major selective codes or networks: teaching and learning, community awareness, and service quality. The complete content of all the analyzed transcripts fell into one of the three networks.
Figure 2: The Community Awareness network includes two branches of selective codes. This figure shows the relationship between the different strata of codes. A few of the many codes for each family are shown. Codes form the foundation of the Community Awareness network. A similar graph will appear in the article “The Role of Synchronous Virtual Reference in Teaching and Learning: A Grounded Theory Analysis of Instant Messaging Transcripts,” *College & Research Libraries*.
**Community Awareness Network**

Figure 2 depicts the structure of the community awareness network. This research defined community awareness as providing increased knowledge of and/or increased access points to community services either within or outside the library walls. This concept parallels the idea of boundary spanning. Boundary spanning allows a person to make connections to other services or resources. In this case, the data illustrates that users make connections with the services within the library, the campus, and beyond. The ISU SVR service supplies users with markers for physical and virtual places and departments. For users, particularly students, URLs virtually map community resources and/or important educational services.

**Community Awareness Data**

Of the 84 transcripts analyzed, 39 fell within the community awareness network. Community awareness transcripts dealt with a service resource, place, or department. Community awareness activities represented 45% of the total transcripts. Of those 39 transcripts, 29 related to the *internal community*. Internal community deals with the library as a place. Within the *internal community* subcategory, 18 transcripts related to *internal departments*, and 11 related to *internal space*.

The axial code *internal departments* and *virtual internal departments* occurred twice; axial codes *internal space* and *virtual internal space* occurred once. The identification of a URL that corresponded to a physical space or department characterizes this category. The virtual categories in this research always had a one-to-one relationship with the physical space or department discussed or named.

The other sub-category in the community awareness network was external community. A total of nine transcripts contained the code *external community resources*; this code described campus departments, regional public libraries, other universities, or businesses. Of the nine *external community resource codes*, three also referred the community service virtually with a URL marker.
Community Network Examples
Figure 3 illustrates a transcript uploaded and coded in the ATLAS.ti software. Figure three illustrates codes that became part of the focused category internal community and virtual internal community. This represents a user request about a library space. The librarian refers both to the room and to the URL that virtually describes the room.

In essence, the URL maps, for the user, the room in both a virtual space and within the physical space of the library. It mirrors the world students live in-a world in which the virtual and physical are not dualistic but rather complementary. This also encourages retention of the information for later use.

Figure 4: The network Teaching and Learning is represented with a selective code, axial codes, open codes, and the memos describing the characteristics of the codes. This graph will appeared in the article "The role of synchronous virtual reference in teaching and learning: A grounded theory analysis of Instant Messaging transcripts," College & Research Libraries.

Teaching and Learning Network
At times learning occurs because the “teacher” imparts basic information to the student in a procedural fashion. At other times teaching and learning is form an interactive, collaborative process between students and instructors that promotes critical thinking and creative skills when examining problems, issues, or concepts. The teaching and learning network includes two teaching and learning axial codes; the first is asynchronous learning, which is a linear approach to teaching, and the second axial code is synchronous learning, which is a complex and dynamic collaborative learning.

Figure 4 shows the open, axial, and selective codes for this network. There are two open codes: information and instruction procedural that make up the larger asynchronous-like learning focused code. In Figure 4, the memos for asynchronous learning describe a static process. The synchronous learning memos describe a dynamic learning experience, which is preferred by today’s students and which complements the strengths of synchronous learning.

Teaching and Learning Data
Of 84 transcripts, 52 (62 percent) fell within the teaching and learning network. SVR teaching and
learning queries dealt with collections (journals, books, etc.) and/or resource finding tools (library catalog, library discovery tool, databases etc.). This was 62% of the total transcripts. Of the 52 teaching and learning transcripts, 44 related to asynchronous learning. Eight of 52 teaching and learning transcripts belonged to the synchronous learning axial code. Within this axial code, four transcripts related to scaffolding, nine to active learning, six to understanding, and 20 to teamwork. For a transcript to fall under the synchronous learning branch, three of the four open codes had to be present.

<table>
<thead>
<tr>
<th>CODE: Information</th>
<th>CODE: Instruction Procedural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guest: Can you please tell me if ISU has online access to the journal &quot;Education with Production&quot;? Add question mark. None of these comments have punctuation — Is that intentional? Same at right.</td>
<td>Isulibim: That should link to several options for the full text online, depending on the date of the article.</td>
</tr>
<tr>
<td>Isulibim: Let me check</td>
<td>Guest: yes and it said in the periodical room, does that sound right?</td>
</tr>
<tr>
<td>Guest: thank you</td>
<td>Guest: I am looking for two different dates and there is nothing for the earlier dates, so I looked on line and it says you have a journal of psychology here</td>
</tr>
<tr>
<td>Isulibim: No we don’t seem to have it. Could could get articles from it through interlibrary loan</td>
<td>Isulibim: Periodical Room would be for very recent paper issues,</td>
</tr>
</tbody>
</table>

**Teaching and Learning Examples**

The examples in Figures 5 and 6 show the characteristics of each code. In graph Figure 5 the example for the open code—information—shows how the incident involves a fact and a simple response. The instruction procedural open code shows how there are a multiple facts that explain something and the user passively receives the information. Even though this is a synchronous tool the teaching style is more linear and asynchronous.

<table>
<thead>
<tr>
<th>CODE: Teamwork</th>
<th>CODE: Scaffolding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isulibim: What date are you looking for?</td>
<td>Isulibim: Are you familiar with Business and Company Resource Center?</td>
</tr>
<tr>
<td>Guest: I need . . .</td>
<td>Guest: no, but I am looking for them online through the library website</td>
</tr>
<tr>
<td>Isulibim: Let me check</td>
<td>Isulibim: Here’s what you can do:</td>
</tr>
<tr>
<td>Guest: any luck?</td>
<td></td>
</tr>
<tr>
<td>CODE: Understanding</td>
<td>CODE: Active Instruction</td>
</tr>
<tr>
<td>Isulibim: ok</td>
<td>Isulibim: Click on the &quot;My Value Line&quot; when you log in</td>
</tr>
<tr>
<td>Isulibim: There is a limiter by language</td>
<td>Isulibim: Let me know when you’ve there.</td>
</tr>
<tr>
<td>Guest: I see it</td>
<td>Guest: Okay I am that far</td>
</tr>
<tr>
<td>Again . . . is in intentional to have no caps or punctuation?</td>
<td>Isulibim: OK, now go into the database . . . click on proceed.</td>
</tr>
<tr>
<td>Guest:</td>
<td>Guest:</td>
</tr>
<tr>
<td>Isulibim: Good now click</td>
<td></td>
</tr>
</tbody>
</table>

The understanding code corresponds to active language such as “Aah, I see it.” Under the scaffolding example (Figure 6), the librarian asks a background question “are you familiar . . . ,” which engages the user. The active instruction example questions the user with “did you get what you needed . . .” and “ok, now go into the database—click on proceed . . . “ All the codes of the synchronous learning branch provide immediate, interactive feedback with the user. Previous research concluded that these elements increase the users’ learning and complement the learning tools and styles found throughout our current educational environment.

**Service Network**

Service is the third network. This research defines service as the interaction positive, negative, or neutral-between the library staff(s) and user(s). Service, like teaching and learning, is a fluid process. Service can either continually improve, remain static, or deteriorate. Libraries must continually assess and tweak services to provide the support users need to feel tied to their community and to succeed in their research. Figure 7 illustrates the service quality network.
Figure 7: The two branches of service quality are service positive and service challenge. A similar graph will appear in the article “The Role of Synchronous Virtual Reference in Teaching and Learning: A Grounded Theory Analysis of Instant Messaging Transcripts,” College & Research Libraries.

Service Network Data
Of 84 transcripts 61 (71%) contained positive service. 12 transcripts, or (14%), illustrated negative service. 11 transcripts, (13%), illustrated neutral service. Figure 7 illustrates the service network branches.

Service Network Examples
Service challenge and service positives (see Figure 7) codes show the importance of quality service. Figure 8 shows examples of service challenge codes; the overlap code illustrates the user and the librarian stepping on each other’s words and the conversation breaks down. This occurred six times in the transcripts. The Time lag code describes a lag in the service or in the user’s response. This breaks up the communication flow. This occurred five times. Technology issues occurred ten times. Either a window pops up, the

<table>
<thead>
<tr>
<th>CODE: Overlap</th>
<th>CODE: Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Guest:</strong> And are you ...?</td>
<td><strong>Isulibim:</strong> even</td>
</tr>
<tr>
<td><strong>Isulibim:</strong> Yes ...</td>
<td><strong>Guest:</strong> a moment later...</td>
</tr>
<tr>
<td><strong>Isulibim:</strong> hold on a second - I want to check on something for you.</td>
<td><strong>Guest:</strong> Oh no! My popup blocker reset the chat window. Could you sent that link once more?</td>
</tr>
<tr>
<td><strong>Guest:</strong> And how can I? I need that document</td>
<td></td>
</tr>
<tr>
<td><strong>Guest:</strong> ok</td>
<td><strong>CODE: Time lag</strong></td>
</tr>
<tr>
<td></td>
<td><strong>CODE: Missed Chance</strong></td>
</tr>
<tr>
<td><strong>CODE: Time lag</strong></td>
<td><strong>CODE: Missed Chance</strong></td>
</tr>
<tr>
<td><strong>Guest:</strong> And are you ...?</td>
<td><strong>Isulibim:</strong> There is this item ...</td>
</tr>
<tr>
<td><strong>Isulibim:</strong> Yes ...</td>
<td><strong>Guest:</strong> i doubt that is the one</td>
</tr>
<tr>
<td><strong>Isulibim:</strong> hold on a second - I want to check on something for you.</td>
<td><strong>Guest:</strong> how do i search for it myself?</td>
</tr>
<tr>
<td><strong>Guest:</strong> And how can I? I need that document</td>
<td><strong>Isulibim:</strong> There is this one: No colon</td>
</tr>
<tr>
<td><strong>Guest:</strong> ok</td>
<td></td>
</tr>
</tbody>
</table>

**CODE: Multitasking**

**Isulibim:** Hope you haven't given up - I had someone at the desk just as you asked your question.

**Figure 8: Excerpts representing codes in the Service Challenge Network**
application crashes, or other computer-related issues affect service. The code missed chance only occurred three times but has the potential to create the strongest negative impact. This occurs when the librarian does not listen, overriding the user’s need. Multitasking occurred five times and occurred when a librarian helped more than one user. It also occurred when a user left to do something else only to return later. All these elements negatively impact users, their learning, and their access to information.

Figure 9: Excerpts representing codes in the Service Positive Network

<table>
<thead>
<tr>
<th>CODE: Introduction</th>
<th>CODE: Extreme Appreciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guest: Hello</td>
<td>Guest: OKay thank you very much! have a great day and enjoy the weather outside its amazing out!!!</td>
</tr>
<tr>
<td>Isililim: How can I help you?</td>
<td>Isililim thanks -</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CODE: Closing</th>
<th>CODE: Appreciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guest: thanks for the help</td>
<td>Guest: Sounds good. I will! I appreciate your help.</td>
</tr>
<tr>
<td>Isililim: You’re welcome. Sorry it wasn’t better news for you.</td>
<td>Isililim: No problem. Glad you used our service</td>
</tr>
<tr>
<td>Guest:: Delete one of these columns. ok</td>
<td></td>
</tr>
</tbody>
</table>

Figure 9 shows examples of service positive. Service positive included an introduction, closing, appreciation, and / or extreme appreciation (in which exclamation points, emoticons, or words such as very, extremely, happy, or similar adjectives are used).

Neutral service occurred when there was no response from the user that indicated the SVR experience was useful. This happened because the user left and came back later in the day telling the librarian they returned. Other times the user just logged off. It was unclear if the service was positive or negative.

Recommendations
Based on these findings, the researchers put forward several recommendations. The recommendations were:

1. Librarians should do only one type of reference at a time. No librarian should be assigned face-to-face reference while doing SVR.
2. Librarians should provide an introduction, closing, or acknowledgement to the user.
3. Librarians should listen to the user and take their cue from the user.
4. Librarians should be given support in learning sound pedagogical techniques to increase their skills.
5. Librarians should be mentored and provided time to assess their skills.
6. Librarians should explore visually enhanced SVR such as SKYPE as a tool that could increase users’ community awareness and learning by providing visual mapping cues.

These recommendations support librarians’, and users’, learning. SVR requires skills and comfort with tools that generally are not taught in library school. SVR provides a robust teaching and learning experience and parallels educational methods and theory. By providing staff development opportunities and resources in the area of synchronous virtual learning, librarians learn how to use an important tool that can facilitate users’ learning.

Impact and Implications
Libraries are essential to organizing our ever-changing and expanding information-rich education world. Librarians guide users to community services and to scholarly information. This assessment demonstrates how libraries are a central player in engaging users, many of whom are students, at universities. The library provides an important role in providing students access to community services and to scholarly materials. People from all over the world use the service to access ISU scholarship. Librarians also provide local users with tools and skills to access information across the world. For example, one user wanted copies of South Dakota newspapers. This service provided users with virtual and/or physical mental marking opportunities about the community and scholarly resources.
All 84 SVR transcripts contained incidents regarding community awareness or teaching and learning. Some transcripts contained both. These experiences can support student success by engaging them with community services and with their research process.10

With respect to community awareness, users’ inquiries about a service, department, or the institution, the library provides essential information that creates a nearly complete picture of the library for the user. When referring to community, regional, and national organizations, SVR provides background and details to users about the larger community.

The onslaught of new information, new environments, new friends, and more during the first year of college, as well as the constant change occurring during the college years from decisions in courses, in majors, and in planning for the future, can overwhelm students. The vast incomprehensibility of libraries to campus users cannot be underestimated.11 The importance of providing SVR, which is convenient and allows for some personalization (e.g., changing user names, employing emoticons), complements many users’ preferred mode of communication. It embeds the user within the services of the library and within the campus as a form of community awareness, which is essential to supporting student success.12

This service provides teaching and learning opportunities to users in a mode that implements current technology in a method most users prefer.13 SVR provides a means for learning about and accessing scholarly materials that cannot, as of now, be easily found on the web. But libraries must examine and improve their services to provide support and success for users. Libraries increase users’ awareness of all the services and resources that the whole university provides. By providing the best services it is probable that the amount of synchronous learning between librarians and users will increase.

SVR service provides a mechanism that supports student social and academic needs. It is imperative that reference librarians continually improve their skills and that their skills transfer to Skype and other SVR tools. The more contact with, the more assistance provided to, and the more quality service given to users provide academic libraries a strong argument for the value they add to the community and to teaching and learning services that support the mission of the larger institution.

## Conclusion

Librarians need to conduct more in-depth assessments in the area of reference services and learning. With respect to this research, it would be of great interest if other librarians replicated this research doing a content analysis using the codes developed for this assessment. Can this assessment be generalized to other college and university libraries? Do the SVR activities of IM correspond to the activities of texting or other synchronous technologies? Would providing a visually enriched service like SKYPE increase learning? Can the lessons learned from this assessment apply to other areas of the library? Library instruction, especially during a synchronous learning activity, would benefit from implementing some of the recommendations. Most importantly, this assessment would benefit from sharing the data with university officials. Sharing this type of data with university officials provides the library with a leadership role in the area of providing innovative community access points and teaching and learning experiences to the users of the campus.

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## Notes


4. Katina Lazarides. “Grounded Theory,” (presentation, University of Wisconsin,
Madison, WI, February 2010).


